

**ICLE**

**Interactive  
Command  
Line  
Editor**

ICLE  
Interactive Command Line Editor

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## GENERAL

Congratulations you have just purchased one of the handiest utilities one can have for the TRS-80 Model 4. Once you learn the power of ICLE you will find it hard to live without.

We suggest you do a few things before installing and using ICLE.

First make backup copies of the diskette. I know everyone tells you to do this, but please do make backups. We left ICLE unprotected just for that reason. Save the original diskette in a safe place free from dust, dirt and any magnetic fields ( such as the telephone).

Read over this manual. It will give you an idea of how the program works and what all of the files are for. After a little practice I'm sure you won't need this manual again.

Practice with the program, it won't take long before you've mastered it.

## ICLE PROVIDED FILES

The original diskette contains several files, most will be needed only during installation.

ICLE/CMD is the main program, this will be installed as an Extended Command Interpreter (ECI). It may be installed as many times as you like.

ICLEINS/CMD is the installation program. It will require the name of the program to be modified ( usually ICLE/CMD unless you have renamed it). And will ask several questions concerning the way ICLE operates. (See the installation section).

ICLEINS/JCL is a JCL file to install ICLE/CMD as an ECI. It is executed by typing "DO ICLEINS". If you happen to have any other ECIs copied to SYS13/SYS they will be overwritten.

ICLE/DOC is a copy of this manual.

ICLECMD/DAT contains the commands, and substitutions. This file is used by ICLE/CMD everytime it starts. If you change the name of the file, used to save your commands, you can copy this file to yours. Note: the structure of this file is critical, you may look at it but don't change it. Unpredictable problems may occur.

On the final working disk you will only need ICLE/CMD. And, after it has been installed as an ECI, even it can be removed. ICLECMD/DAT contains a list of example commands used by ICLE. If ICLE cannot find this data file it will create its own.

## INSTALLATION

Installation is very easy.

1. Make backup copies of the original. Use the BACKUP command described in the Disk Systems Owners Manual from Tandy. Put the original in a safe place free from dust and dirt.
2. Place a disk copy of ICLE in any available drive, so you may access it with the TRSDOS commands.
3. This manual will describe ICLE using the commands and files it was originally supplied with. If you do not intend to change any of these defaults then skip to step #6. It is recommended that you do not change any of the defaults yet. After you become familiar with the operation of ICLE then you may wish to make changes.
4. Type in ICLEINS ICLE/CMD      Program ICLEINS will run and search for ICLE/CMD. Be sure that the disk containing ICLE/CMD is not write protected, else your changes won't be saved.
5. The questions ICLEINS asks may be left unchanged by just pressing the ENTER key.

Here is a list of questions asked by ICLEINS:

"File spec for commands, max. 14 characters " -File used to store commands and substitutions. The default is ICLECMD/DAT. Be sure it is a legal file-specification. And if you specify a drive, be sure that drive is available. ICLE will start and exit quicker if the drive is specified. If you have the extra 64k memory option installed then we suggest you use a memdisk file. The ICLEINS/JCL command file has an option to install a memdisk as logical drive :7.

"Cursor Character during Insert Mode ( '\*' is recommended) " -This is the cursor during insert mode when editing a command. Be sure the character you choose is printable. Also remember that the "High Bit" routine may be on (for inverse video), so some of the special characters will appear different. Please refer to the Disk System Owner's Manual by Tandy.

"Literal Substitution character ( '=' is recommended) " -This character is used to specify substitution strings. Whatever is on the leftside of the '=' will searched for within the entered command. If a match is found, then that string will be replaced with whatever is on the right side of the '='.

"Command Substitution character ( '\$' is recommended) " -This character is used for command substitutions. It is similiar to the "alias" command in Unix. For example: newcommand\$oldcommand oldcommand will be executed whenever newcommand is typed. The first word in a command line is

## Installation

considered the command.

"Startup in: 0= Overwrite or 1= Insert Mode" -When ICLE starts, would you like the editor in the Insert Mode (key in a 1) or the Overwrite mode (key in a 0).

"Startup screen: 0= Regular, 1= COMMAND, 2= SUBSTITUTION" -After starting, would you prefer the Regular screen (similar to the way TRSDOS operates now)? If so press the 0 (zero) key. Or if you want the COMMAND screen press the 1 key. Or if you would like the SUBSTITUTION screen, then press the 2 key.

"Key to: Delete character to left of cursor" -Actuate the keystroke you would like to use when deleting a character to the left of the cursor. If you do not want to change the current keystroke (it will be shown in inverse video) then just press ENTER.

"Key to: Move cursor to left margin" -Press the keystroke, you would use, to move the cursor to the far left, or beginning of line.

"Key to: Move cursor one place to the right" -To move the cursor one character to the right, usually the right arrow key.

"Key to: Move cursor to the right margin" -To move the cursor all the way to the right, or end of line.

"Key to: Toggle Command screen" -What key would you like to use to change the screen from Regular to COMMAND. Pressing this key again (while running ICLE) will change the screen again to REGULAR.

"Key to: Toggle edit mode (insert or over-write)" -This keystroke will change the edit mode from Insert to Over-write, and back again. The cursor will be changed to remind you of which mode you are in.

"Key to: Purge a command" -This key will remove a selected command from the displayed command list. You must be displaying the COMMAND or SUBSTITUTION screen in order for this feature to operate.

"Key to: Delete to End Of Line" -Clear all characters from the current cursor position to the end of line.

"Key to: Clear command line" -Remove everything on the command line, start over.

"Key to: Select a previous command" -Select a command that has been used previously, this is usually the up arrow.

"Key to: Select a later command" -Selects a command farther down the screen.

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"Key to: Non-destructive backspace" -To move the cursor to the left, without erasing any characters.

"Key to: Delete character under the cursor" -Delete the character where the cursor is currently positioned, all characters to the right of the cursor will be shifted one position to the left.

"Key to: Move to beginning of next word" -Move the cursor to the next word.

"Key to: UnPurge a command" -Restore a COMMAND back onto the list. This is useful as an "oops" function, or for rearranging Commands and Substitutions.

"Key to: Change to Substitution screen" -Pressing this key will make ICLE display the Substitution screen.

" Save changes Y or N ?" -Answer Y for yes or N for no. If you are satisfied with your choices then enter a Yes, and all of your changes will be patched into the selected command file (ICLE/CMD).

" Key can not be Alphanumeric, it must be unprintable" -This is an error message, some keystrokes must not be printable alphanumeric characters. They must be unprintable characters, that would not normally show up on the display screen. Please refer to the Appendix in the Disk System Owner's Manual by Tandy.

6. Now execute the script file ICLEINS/JCL by typing in DO ICLEINS  
The following menu will be displayed:

- 0...Install ICLE & Memdisk :7 (must have 128k memory option)
- 1...Install ICLE Only
- 2...Re-Start ICLE
- 3...Exit (don't Install ICLE)

Select option '0' if you would like to run ICLE using memdisk in one of your extra memory slots. Note that memdisk will be installed as disk number '7', and the command file, ICLECMD/DAT, will be copied to this disk. ICLE/CMD will be installed on the current system disk, ':0'.

Selection number '1' will install ICLE/CMD on the current system disk, and copy the data file, ICLECMD/DAT, to the same disk ':0'.

Selection number '2' may be used to restart ICLE at any time. However, ICLE must have been previously installed. Otherwise whatever is currently in SYS13/SYS will be started.

Option '3' does exactly what it says, nothing.

During installation ICLE/CMD will be copied to SYS13/SYS:0. SYS13 is a system file used for ECIs. Then the MEMORY command is run, this

## Installation

will turn on a bit in system flag 'E'. When this flag is nonzero, a program in SYS13 will be run instead of the regular "TRSDOS Ready" prompt.

7. Within a couple of seconds the "ICLE Ready" prompt should appear.  
ICLE has been installed!

## USING ICLE

The following paragraphs reference to keystrokes are assuming you have not changed the default commands. If they have been modified, when you used ICLEINS/CMD, then you should draw yourself a quick cross reference card, to make the following instructions easier to comprehend.

Using ICLE is even easier than installing it. At the "ICLE Ready" prompt it will operate much like TRSDOS did (except backspace will not erase the characters, they will have to be manually erased or typed-over). Simply type in your commands and press ENTER just like before.

There are 3 screens available: REGULAR, COMMAND and SUBSTITUTION. The REGULAR screen is what you have always seen when the TRSDOS Ready prompt appears. The COMMAND screen displays a list of your last 20 commands (note that the command line will always be at the bottom of the screen when you are displaying the COMMAND screen). And SUBSTITUTION contains the list of literal and command substitutions that ICLE will perform. Notice that at the SUBSTITUTION screen anything typed in will be placed onto the Substitution list. Commands will not be accepted unless you are in the REGULAR or COMMAND screen.

At the "ICLE Ready" prompt, press the F1 key, and now you will see the COMMAND screen. This screen will contain a list of the last 20 commands that have been entered. It works like a FIFO (First In First Out) buffer or stack. In other words the first command entered is the first one that scrolls off the top of the screen.

Now use the up-down arrow keys to select any one of the currently displayed commands. Notice that the selected command also shows-up on the command line (bottom line) of the screen. This is so you can edit the command before you press ENTER.

## Using ICLE

### EDITING

Commands (or Substitution lines) may be edited any time they appear on the bottom line, and before the ENTER key is pressed. The cursor movement keys are: (Note: you may have changed some of these if you ran the ICLEINS/CMD program.)

(Shift <---) Shift & Left Arrow; position cursor all the way to the left side of the screen.

(Shift --->) Shift & Right Arrow; move cursor to the end of the command line, or EOL.

(--->) Right Arrow; move cursor one position to the right. Note: that the cursor will stop moving when the EOL is reached.

(<---) Left Arrow; move cursor to the left. This is a non-destructive backspace, meaning, it will not erase any characters.

(Clear 4) Hold Clear key & press 4; advance to begining of next word.

(F2) Toggle edit mode. Change from overwrite to insert mode. In overwrite mode, typing new characters will replace any characters to the right. In Insert mode, new characters will be inserted between old text; the characters to the right of the cursor will be shifted to the right.

### DELETING

(Shift Clear) hold Shift & press Clear keys, in that order; Delete character to the left of the cursor. (just like backspace, or left arrow, used to.)

(Clear 3) hold Clear key & press 3; delete character under the cursor. All characters to the right will be shifted to fill in for the erased character.

(Clear <---) Clear & Left Arrow; Erase command line, and start over.

(Clear --->) Clear & Right Arrow; Erase all characters to the right of the cursor.

### SCREEN MANAGEMENT

One of the most powerful features of ICLE is it's screens. There are several keys to control the information stored on the COMMAND and SUBSTITUTION screens.

(F1) Toggle between COMMAND and regular screen. You may use all of the editing features in either of these screens. The regular screen will only display the selected commands, the rest of the regular screen is left undisturbed.

(Shift F1) Change to SUBSTITUTION screen. This will show the

## Using ICLE

Substitutions that are done to every command before it is sent onto TRSDOS. To return to regular screen, just press (F1).

(F3) Purge current command or substitution. A selected Command or Substitution, will be removed from the screen. See also, (Shift F3).

(Shift F3) Unpurge a previously Purged command (or substitution). The (F3) and (SHIFT F3) keys are very useful for rearranging commands or substitutions.

(Up Arrow) Select a Command or Substitution closer to the top of the screen. Note that when the top line is reached, pressing up arrow again will select the bottom of the list.

(Down Arrow) Select a Command or Substitution farther down the screen. Note that when the bottom line is reached, pressing down arrow again will select the top of the list.

(Enter) In the regular or COMMAND screen, pressing the ENTER key will instruct ICLE to accept the current command line (at the bottom of the screen) do any applicable substitutions to it, and submit the new line to the TRSDOS command interpreter. In the SUBSTITUTION screen, the information is put onto the substitution list and more information is requested. You may then enter another substitution or switch to another screen.

## SUBSTITUTIONS

The Substitution screen displays all of the logical changes (or replacements) that may be done to an inputted command before it is sent to the TRSDOS command interpreter. One must be wary of the substitutions they expect ICLE to do, as they can create some rather bizarre and unexpected results.

## LITERAL SUBSTITUTIONS

There are 2 different kinds of substitutions. Those defined with an equals '=' sign mean: change every occurrence of this string (left side of the equals sign) to what is on the right side of the equals sign.

For example: if the SUBSTITUTION screen shows \*=  
then every time a command line is entered that has an \* in it, ICLE will replace it with a \$. In other-words, a CAT ICL\*/CMD will be changed to CAT ICL\$/CMD.

ICLE does its substitutions from the top of the list, to the bottom.

So a substitution list of:

```
*=$
.=/
$=OOPS
```

Will convert a command, such as CAT \*.CMD, into CAT OOPS/CMD . That's because the \* was converted into a \$, and later the \$ was converted into OOPS. For those of you familiar with Unix or MS-DOS file specifications, notice the .=/ substitution, this can be very handy for those who must switch from one machine to the other (please don't get confused by the periods at the end of the sentences).

## COMMAND SUBSTITUTIONS

The other kind of substitution is usually used for commands. The 2 parts are defined by using a '\$', or vertical bar. This is generated on the Model 4 by holding down the CLEAR key, then holding down the SHIFT key, and tapping the '/' key - in that order. In a command, the string of characters that matches the characters from the left side of the '\$' will be replaced with the string of characters from the right side; just like before. Except only the first word is checked. This can be illustrated by a series of examples:

Suppose we have a substitution screen of:

*=\$	<--- substitute all * with \$
.=/	<--- substitute all . with /
T\$LIST	<--- replace a T command with LIST

Then the command:

T ICL\*.TXT

Will become:

LIST ICL\$/TXT

However, had we used the literal substitution '=' then the results would be very different, and wrong.

The substitution of:

T=LIST

To the command of:

T ICL\*.TXT

Would have yielded:

## Substitutions

### LIST ICL\$/LISTXLIST

Notice that the T's in TXT were replaced with LIST; obviously not a desirable substitution.

Command substitution can also be useful when using the interactive HELP that comes with TRSDOS 6.2. By having an H defined as HELP DOS you can quickly get help on any TRSDOS command.

Setting up the command substitution of:

H\$HELP DOS

Then entering a command such as:

H PURGE

Will give the help screen for the TRSDOS PURGE command. By setting up command substitutions you can save yourself a lot of extra typing.

It should be noted that substitution is case dependent. Meaning, if your substitutions are all in small case letters, then ICL\$ won't do the changes if you are using capital letters. In other-words a small letter 'h' is not recognized by ICL\$ to be the same as a capital 'H'. This can be used to your advantage. For example, suppose you are using a word processor called L/CMD, but you also want to use just the letter 'L' for the TRSDOS LIST command. On your substitution screen enter:

L\$LIST

When you want to use your word processor just type in the lowercase 'L'. The substitution won't be done, and L/CMD will be run. Or, to bypass the substitution, you could also type in RUN L ; you see there is a use for the Run command.

## Summary of Keystrokes

### SUMMARY OF KEYSTROKES

- ( Shift Clear ).....Delete previous character.
- ( Shift <-- ).....Move cursor to left margin.
- ( --> ).....Move cursor one position to the right.
- ( Shift ---> ).....Advance to End Of Line (EOL).
- ( F1 ).....Toggle COMMAND and REGULAR screens.
- ( F2 ).....Toggle Edit mode, Overwrite or Insert.
- ( F3 ).....Purge selected command or substitution.
- ( Clear --> ).....Erase from cursor to EOL.
- ( Clear <-- ).....Erase command line and start over.
- ( up arrow ).....Select command or substitution.
- ( down arrow ).....Select command or substitution.
- ( <-- ).....Move cursor to the left.
- ( Clear 3 ).....Delete character under the cursor.
- ( Clear 4 ).....Move to the beginning of next word.
- ( Shift F3 ).....Unpurge a previously purged (F3) line.
- ( Shift F1 ).....Change screen to SUBSTITUTION display.
- ( !=' ).....Defines a literal substitution string.
- ( '\$' ).....Defines a command substitution string.

## Technical Information

### TECHNICAL INFORMATION AND ERROR MESSAGES

ICLE is written in 'C' using the PRO-MC compiler from MISOSYS. MC is a trademark of MISOSYS Inc. ICLE was used to produce ICLE.

ICLECMD/DAT file. The ICLECMD/DAT data file contains all of the commands and substitutions separated by nulls (binary zeros). The commands are separated from the substitutions by 2 consecutive nulls. Although the file format is simple, ICLE expects the data in this form. Any changes must be made with extreme caution, since error checking is very minimal. We would like to have included more error checking (idiot proofing) but that would have greatly increased the size and load time of ICLE. If you are using the MEMDISK option, you may wish to keep a copy of ICLECMD/DAT on another disk; and copy it to the memdisk before starting ICLE. In fact, you may have as many command files as you wish. ICLECMD/DAT may be overwritten with a different file at any time, even when ICLE is active.

ICLEINS/CMD was specially written for your version of ICLE. If you should acquire another version of ICLE, be certain to use its' accompanying install program. There is no guaranty that keystrokes and file-names will be in the same relative positions with different versions of ICLE.

Error checking is limited to: file IO (file not found, or parity error), "Not Enough Memory", and entering of characters that have no meaning. File IO errors will usually be reported with a TRSDOS error message. It is not a fatal error if the ICLECMD/DAT data file is not found, as long as there is no problem creating another one.

"Not Enough Memory" is reported if ICLE cannot get the ram memory it requires to run. This may be caused by the HIGH\$ being set much too low. Since ICLE is not a large program, it is doubtful that this error will ever appear.

Beeps, from the Model 4 sound board, are ICLEs way of reporting unrecognized keystrokes. Note that the BREAK key is taken the same as the ENTER key. Error checking for poor syntax in substitution commands is not available, we have left it up to the operator to read this manual and learn the simple syntax. If a substitution command does not contain a '=' or '§', then that command line is simply ignored. Also if a substitution results in a command line being larger than 80 characters, then the buffer will overflow, possibly causing unpredictable results. Care should be taken to prevent more than 80 characters in a command line. We have found it very unlikely that any TRSDOS command could possibly require that many characters.

Substitution looks for 2 things when it is doing command ('§') substitutions. It requires either a space '' or a carriage return (ENTER), before it assumes it has found the correct match. For example, if you have a substitution of L\$LIST

## Technical Information

then when ICLE is doing substitutions it will require an "L filespec" or an "L<ENTER>" before it accepts this as the proper command. Otherwise you could have typed in LOAD, now you wouldn't want ICLE to replace the L in LOAD would you? Remember, if you were to have used the literal substitution of L=LIST then the L in LOAD would be replaced with LIST.

Changing disks. If you change system disks by using the SYSTEM (SYSTEM=x) command, then ICLE must be also be installed on the new system disk. Remember that during the installation process ICLE/CMD is really copied to SYS13/SYS on the current (:0) system disk. If you change disks then SYS13/SYS on the new disk will be executed at TRSDOS prompt time. This won't create any serious problems, but it may be a little jarring when an old ECI program unexpectedly starts, or the message "<\*> ECI not installed" occurs and you are returned to "TRSDOS Ready". To copy ICLE to another disk you may use the ICLEINS/JCL script file, or you may manually enter the copy command. It's syntax is COPY ICLE/CMD to SYS13/SYS.LSIDOS (CLONE=N) it is important that the (CLONE=NO) be included otherwise TRSDOS will not recognize the SYS13/SYS file as a system file.

If ICLE "hangs", or the screens contain garbage, then the data file has become corrupted. The quickest fix is to copy ICLECMD/DAT, from your original disk, and overwrite the corrupted data file.

### ENABLING OR DISABLING ICLE

System flag 'E' must be non-zero in order for ICLE to run. When ICLE has been installed you may use the SYSGEN command to permanently save the state of the 'E' flag. Or you may have a JCL file with the command MEMORY (A="E",BYTE=1) execute whenever you want ICLE.

If TRSDOS Ready appears then somehow system flag 'E' was cleared. You can restart it by executing the ICLEINS/JCL and selecting menu item '2', or by typing in: MEMORY (A="E",BYTE=1). This will tell TRSDOS to run whatever is in SYS13/SYS instead of giving the "TRSDOS Ready" prompt. Remember if you switch system disks then the new disk must also have ICLE installed

If you need to disable ICLE, then type in: MEMORY (A="E",BYTE=0)

### FURTHER INFORMATION

If you need help, or would like more information, feel free to call us at: (303)989-6068. Or write to: AISE, 1799-D S. Lee st., Lakewood, CO 80226.

I can be contacted on CompuServe: 76314,1702

Or the GENie network: FCBERNDT

I'll be happy to discuss any ideas or questions you may have.